We claim:

1. A method of regenerating a used noble metal-containing titanium zeolite catalyst comprising the steps of:

(a) heating the used catalyst at a temperature of at least 250°C in the presence of a gas stream comprised of oxygen to obtain a heated product; and

(b) reducing the heated product at a temperature of at least 20°C in the presence of a gas stream comprised of hydrogen to form a reactivated catalyst;

wherein the noble metal-containing titanium zeolite catalyst was used to catalyze the epoxidation of an olefin with hydrogen and oxygen in the presence of at least one reaction solvent and at least one buffer.

2. The method of claim **1** which comprises washing the used noble metal-containing titanium zeolite catalyst with a wash solvent prior to step (a).

3. The method of claim **2** wherein the wash solvent is selected from the group consisting of water, aliphatic alcohols, and mixtures thereof.

4. The method of claim **1** wherein the used catalyst is heated at a temperature greater than about 300°C.

5. The method of claim **1** wherein the gas stream comprised of oxygen is air.

6. The method of claim **1** wherein reduction step (b) is performed at a temperature of at least 30°C.

7. The method of claim **1** wherein the used noble metal-containing titanium zeolite catalyst comprises titanium silicalite and palladium.

8. The method of claim **1** wherein the used noble metal-containing titanium zeolite catalyst comprises titanium silicalite, palladium, and one or more metals selected from the group consisting of gold and platinum.

9. The method of claim **1** wherein the used noble metal-containing titanium zeolite catalyst comprises a palladium-containing titanium zeolite and a palladium-free titanium zeolite.

10. The method of claim **1** which comprises heating the used catalyst at a temperature of at least 250°C in the absence of oxygen prior to step (a).

11. The method of claim **1** wherein the reaction solvent is selected from the group consisting of water, C_1-C_4 alcohols, supercritical CO_2, and mixtures thereof.

12. The method of claim **1** wherein the buffer comprises an anion and a cation, wherein the anion is selected from the group consisting of phosphate, carbonate, bicarbonate, carboxylate, citrate, borate, hydroxide, silicate, aluminosilicate, and mixtures thereof, and the cation is selected from the group consisting of ammonium, alkylammonium, alkali metal, alkaline earth metal, and mixtures thereof.

13. A method of regenerating a used noble metal-containing titanium zeolite catalyst comprising the steps of:

(a) washing the used catalyst with a wash solvent;

(b) heating the washed catalyst at a temperature of at least 300°C in the presence of a gas stream comprised of oxygen to obtain a heated product; and

(c) reducing the heated product of step (b) at a temperature of at least 30°C in the presence of a gas stream comprised of hydrogen to form a reactivated catalyst;

wherein the used noble metal-containing titanium zeolite catalyst was used to catalyze the epoxidation of an olefin with hydrogen and oxygen in the presence of at least one reaction solvent and at least one buffer.

14. The method of claim **13** wherein the wash solvent is selected from the group consisting of water, aliphatic alcohols, and mixtures thereof.

15. The method of claim **13** which comprises heating the washed catalyst at a temperature of at least 300°C in the absence of oxygen prior to step (b).

16. The method of claim **13** wherein the used noble metal-containing titanium zeolite catalyst comprises titanium silicalite and palladium.

17. The method of claim **13** wherein the used noble metal-containing titanium zeolite catalyst comprises titanium silicalite, palladium, and one or more metals selected from the group consisting of gold and platinum.

18. The method of claim **13** wherein the used noble metal-containing titanium zeolite catalyst comprises a palladium-containing titanium zeolite and a palladium-free titanium zeolite.